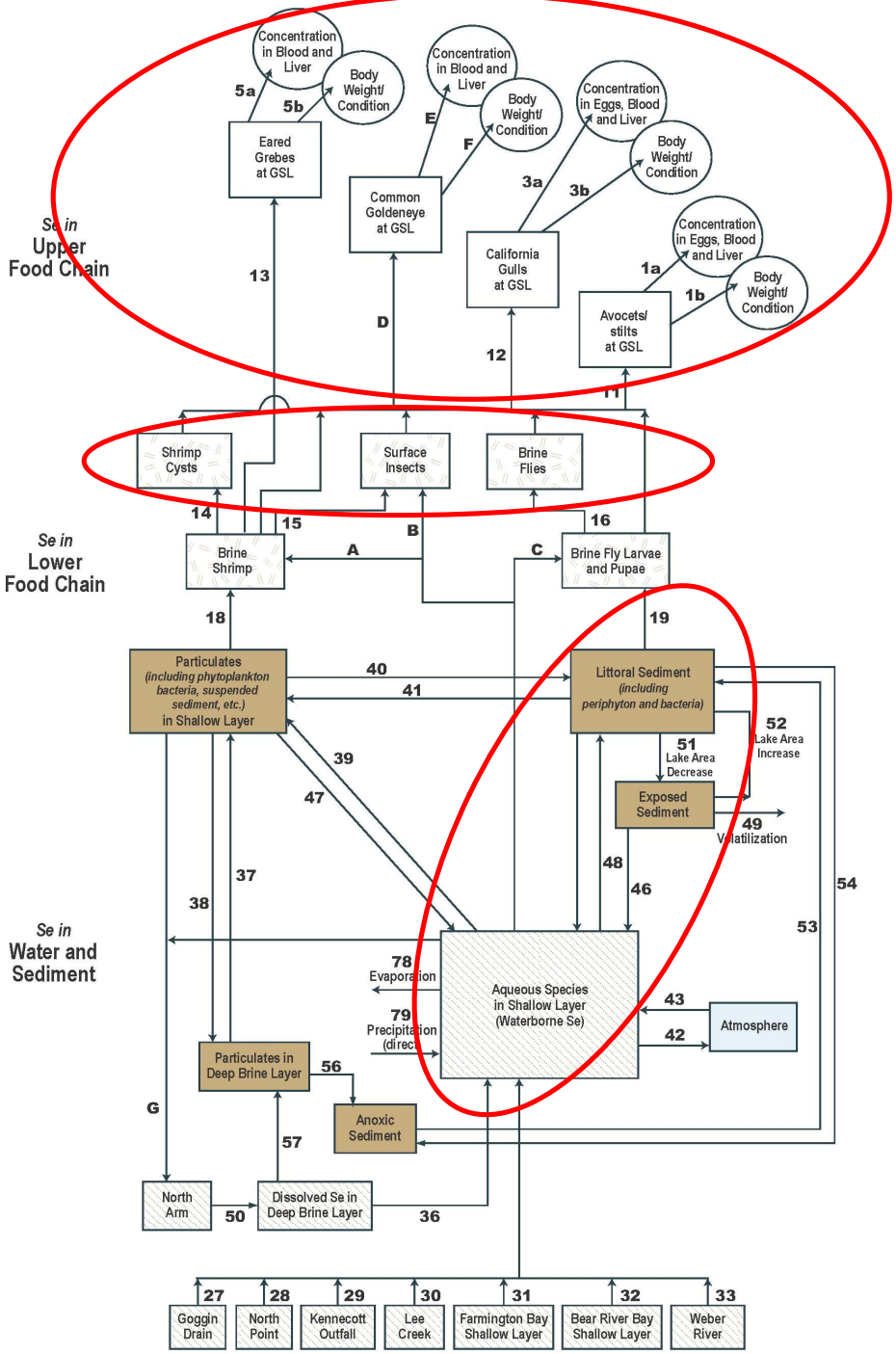
Great Salt Lake Water Quality Studies

Selenium Program Update

- Project 1 – Birds
- Project 2 – Food Chain
- Project 3 – Selenium Loading
- Project 4 – Selenium Flux
- Project 5 – Brine Shrimp Kinetics
- Memorandums
- Upcoming Milestones

September 11, 2007

CH2MHILL/CWECS



Project 1
Birds

1A – John Cavitt/WSU

1B – Mike Conover/USU

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Project 1 A – Shorebirds

- 2006/2007 sampling program
  - *Sampling complete*
  - *Data analysis complete*
  - *Expect reports this month*

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Project 1 B1 – California Gulls

- 2006/2007 sampling program
  - *Sampling complete*
  - *Data analysis complete*
  - *Expect to finalize reports this month*

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Project 1 B2 – Overwintering Birds

- *Sampling complete*
- *Data analysis complete*
- *Expect report this month*

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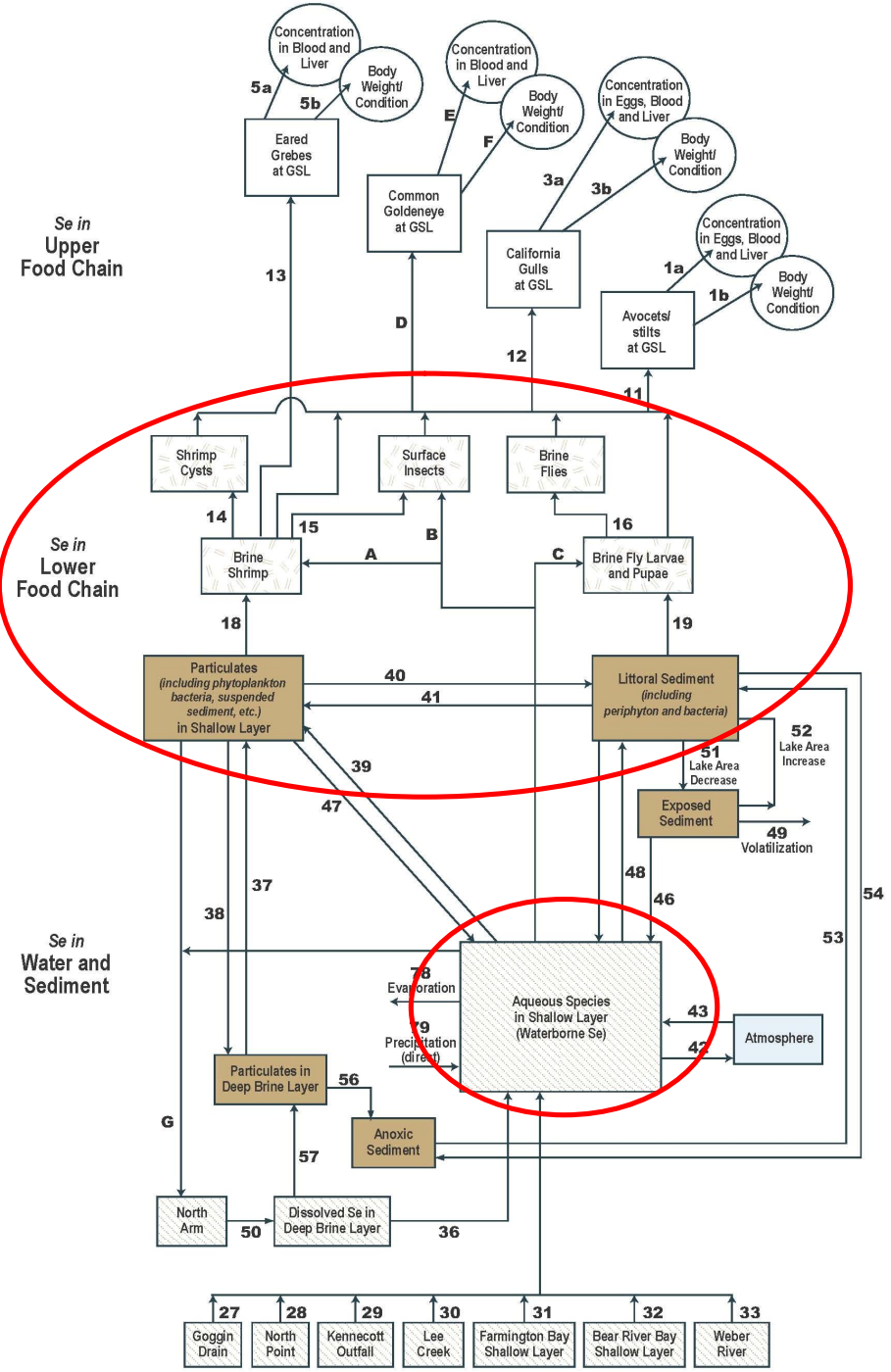
Further Analysis of Se Concentrations in Avian Blood Samples

- Re-Validated 2006 data and methods
- Research into methods used for blood analysis
- Completed spring 2007 sampling to confirm 2006 concentrations and look at possible Se:Hg interaction
- Inter-lab comparison validated LET's results
- Completed review of literature for marine birds
- Two memorandums to document evaluation, should be finalized this month



Project 2
Food Chain

2A - Wayne Wurtsbaugh/USU
2B - Brad Marden/Parliament Fisheries

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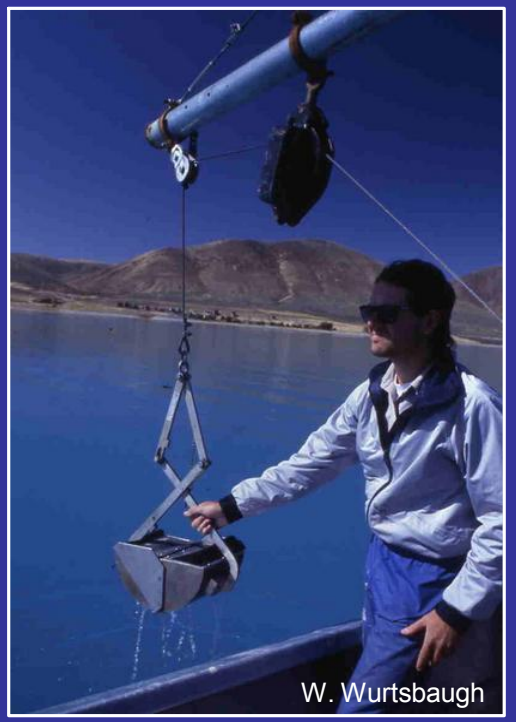
Project 2A – Benthic Zone

- 2006 sampling program
  - *Sampling complete*
  - *Data analysis complete*
  - *Final report completed in May, addendum this month with some new sediment data*


W. Wurtsbaugh

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Project 2B – Synoptic Survey

- 2006/2007 sampling program
  - *Sampling complete*
  - *Data analysis complete*
  - *Draft report complete, expect updated report with 2007 data next week*

B. Marden

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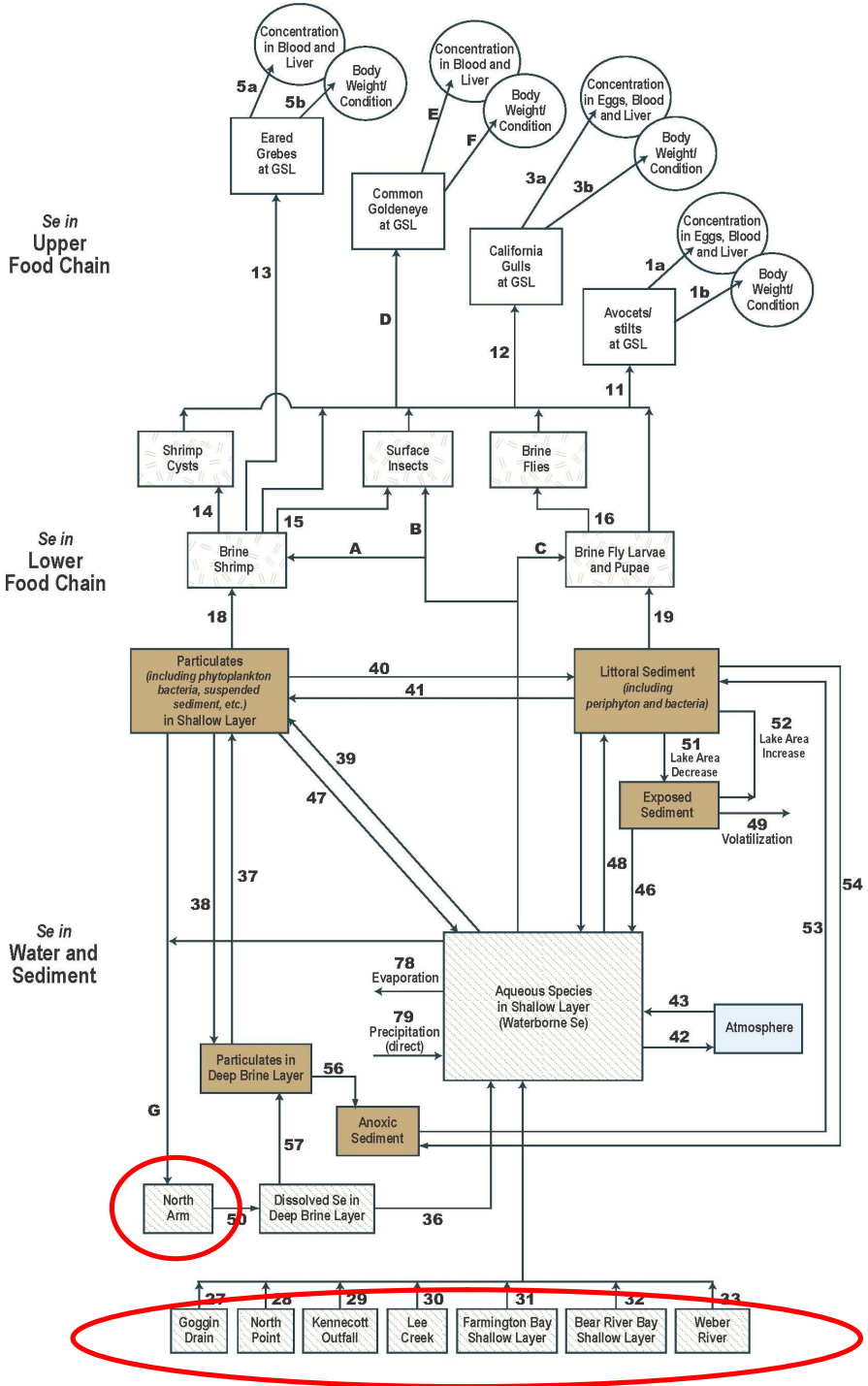
Further Analysis of Se Concentrations in Brine Shrimp Samples

- Validated 2006 data and analytical methods
- Completed side by side comparison of sampling methods
- Completing inter-lab comparison
- Comparing 2006/2007 methods
- Memorandum should be complete this month



Project 3
Selenium Loading

Dave Naftz/USGS
Bill Johnson/UofU

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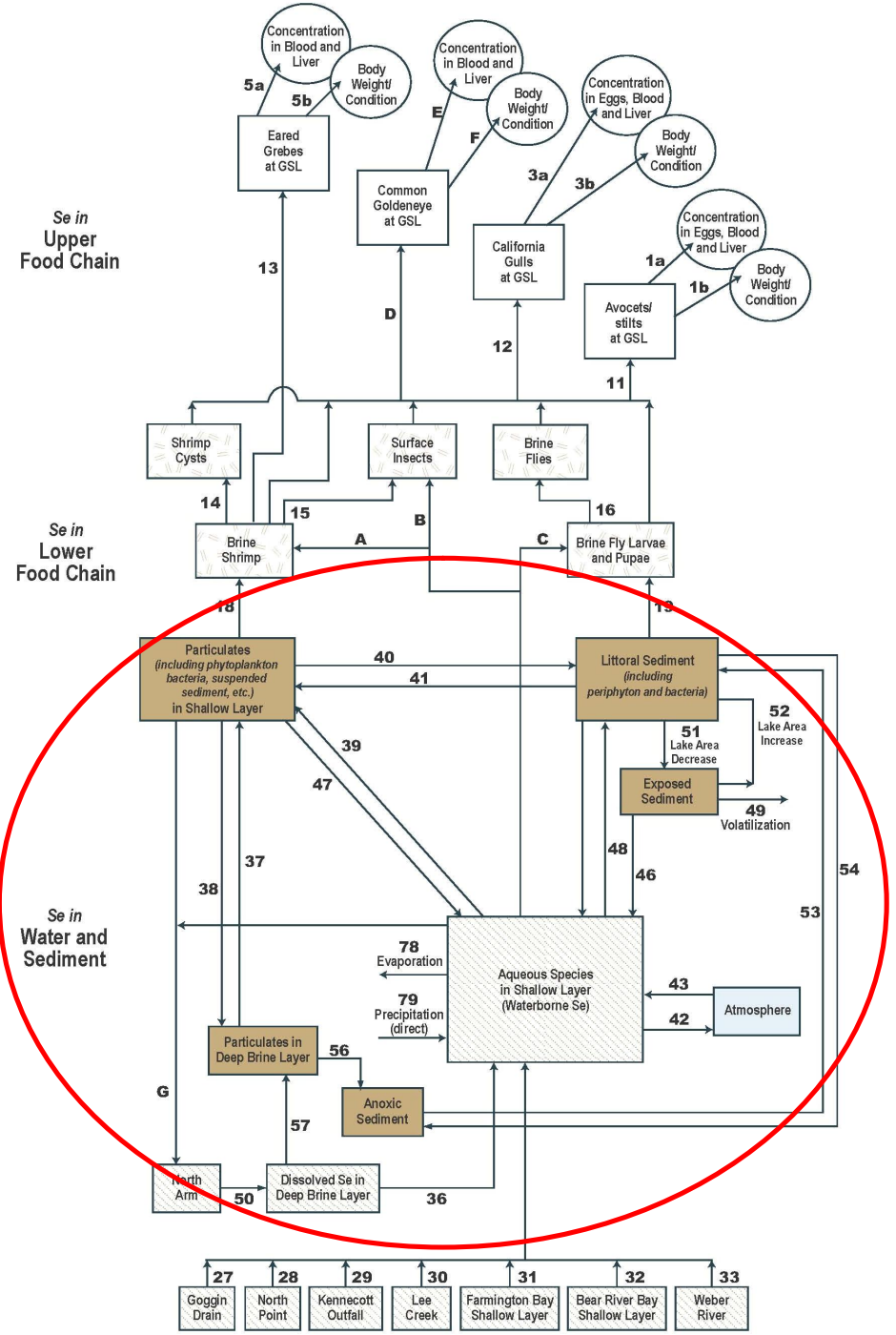
Project 3 – Selenium Loading

- *Scheduled for 2006-2008*
- *Sampling is ongoing*
- *Final draft report for 2006 data submitted to Science Panel in early May*
- *Expecting loading update next week*



Project 4
Selenium Flux

Bill Johnson/UofU
Dave Naftz/USGS

CH2MHILL/CWECS

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Project 4 – Selenium Flux

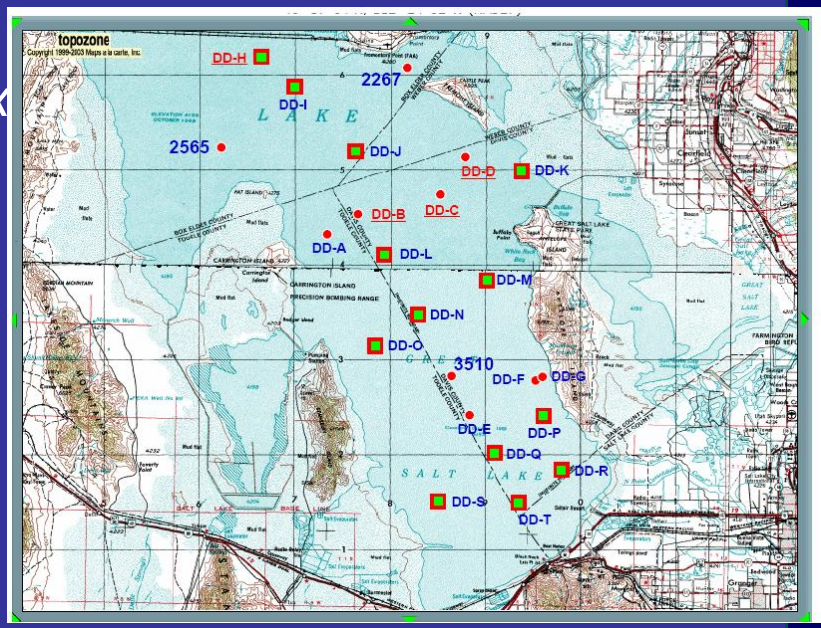
- 2006 Sampling Program
  - *Final draft report for 2006 data submitted to Science Panel in early May*
  - *Sampling completed this summer*
  - *Expecting update this month*

D. Naftz

Great Salt Lake Water Quality Studies

Project 4 – Selenium Flux

- 2007 Sediment Studies
  - *Objective is to refine sediment flux rates*
  - *Analysis of 20 shallow cores and geophysical data complete*
  - *Analysis of 5 deep cores to be completed in the next month*
  - *Expect to corroborate current sediment flux this month with full update in October*



D. Naftz

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Project 4 – Selenium Flux

- 2007 Volatilization Studies
  - *Objective is to refine atmospheric flux rates*
  - *Ongoing sampling on lake to measure actual volatilization rate*
  - *Update on volatilization rate expected this month*

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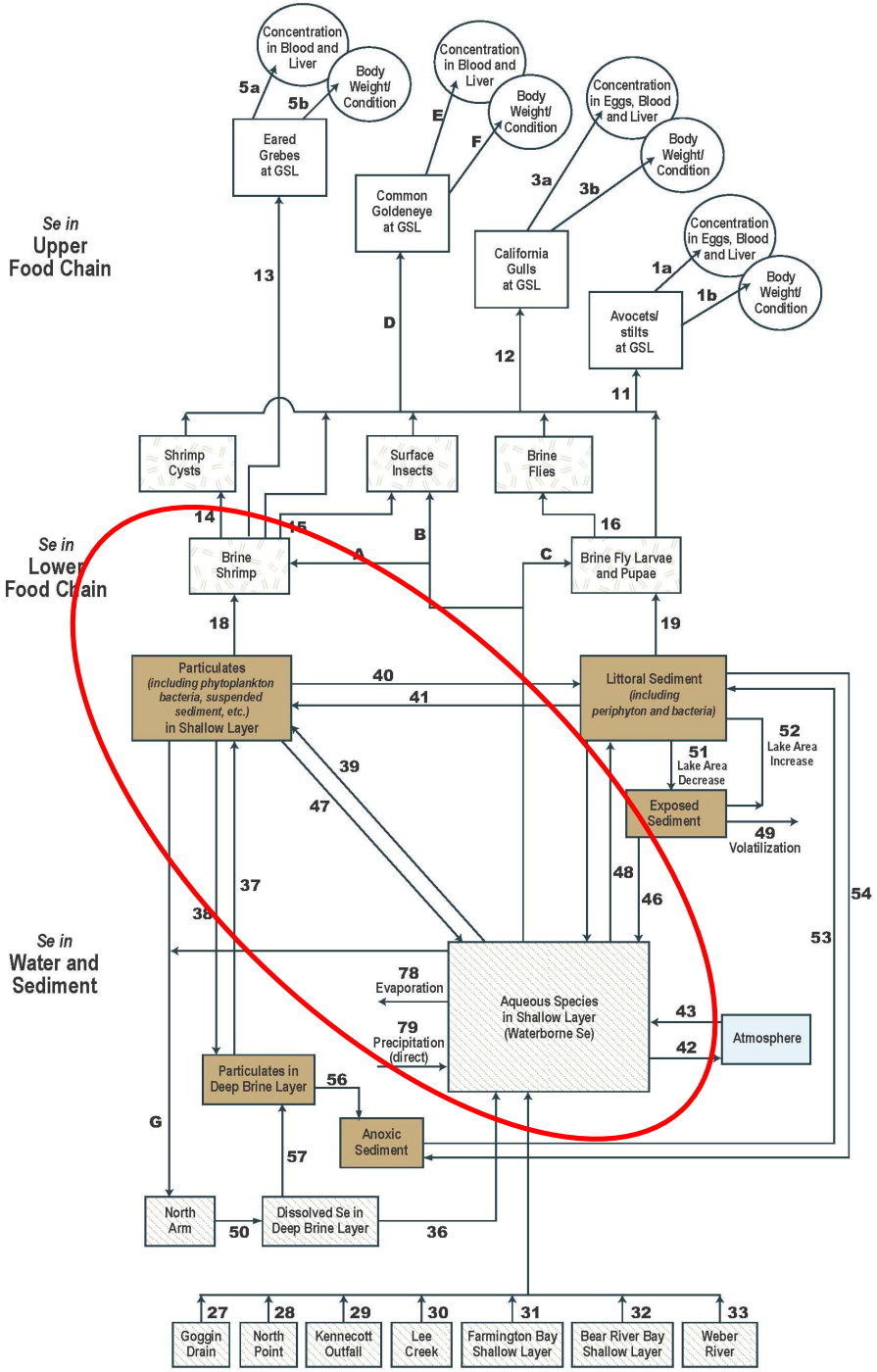
Further Analysis of Se Concentrations in Deep Brine Layer

- Re-validated 2006 data and analytical methods
- Completed side by side comparison of sampling methods
- Completing inter-lab comparison
- Expect to finalize analysis this month



Project 5
Brine Shrimp Kinetics

Martin Grosell/U of Miami

CH2MHILL/CWECS

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Project 5 – Brine Shrimp Kinetics

- *Objective is to refine transfer factors from water/algae to brine shrimp*
- *Evaluated role of salinity*
- *Determined uptake rates from water and algae*
- *Currently determining elimination rates and developing model*
- *Draft report in October*

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Threshold Values

- Harry Ohlendorf maintained a memorandum summarizing Panel deliberations through March 2007
- Panel discussed again July 31/Aug 1
- Harry prepared 4 page summary memo (currently in Panel review)
- Modeling will capture full range of concentrations identified by Panel
- Harry to prepare 1 page “fact sheet” with Panel

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Data Integration/Modeling

- Data validation is almost entirely complete
- Currently synthesizing datasets
- Receiving key updates from PIs this month
- Model will be updated as each component data set is updated

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Final Report

- Final reports from most projects will be delivered in September
- CH2M HILL will submit a draft synthesis report with the model to the Panel on Nov. 1
- Panel will review during November and identify changes at their Nov 28-30 meeting.
- Final reports from sediment, volatilization and brine shrimp kinetics study expected in Oct/Nov.
- Those reports will be referenced in a final report to the Panel in January

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Key Milestones

- September 28 – database complete
- November 1 – draft report/model to Panel
- Month of November – PI/Panel review
- Nov 28-30 – Panel meeting in SLC
- December – CH2M HILL revises model/report
- January 11 – final report to Panel

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Key Milestones

- February 8 – Panel members submit individual recommendations to the Panel
- February 21-22 – Panel meeting in SLC, make recommendation to Steering Committee
- February 23 – Steering Committee meeting with Panel to discuss recommendation

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Key Milestones

- February 27 – Stakeholder meeting
- February 28 – Steering Committee meeting, make recommendation to DWQ
- March 14 – DWQ makes recommendation to Water Quality Board
- April 15 – DAR publishes public notice
- June 20 – Water Quality Board adopts rule

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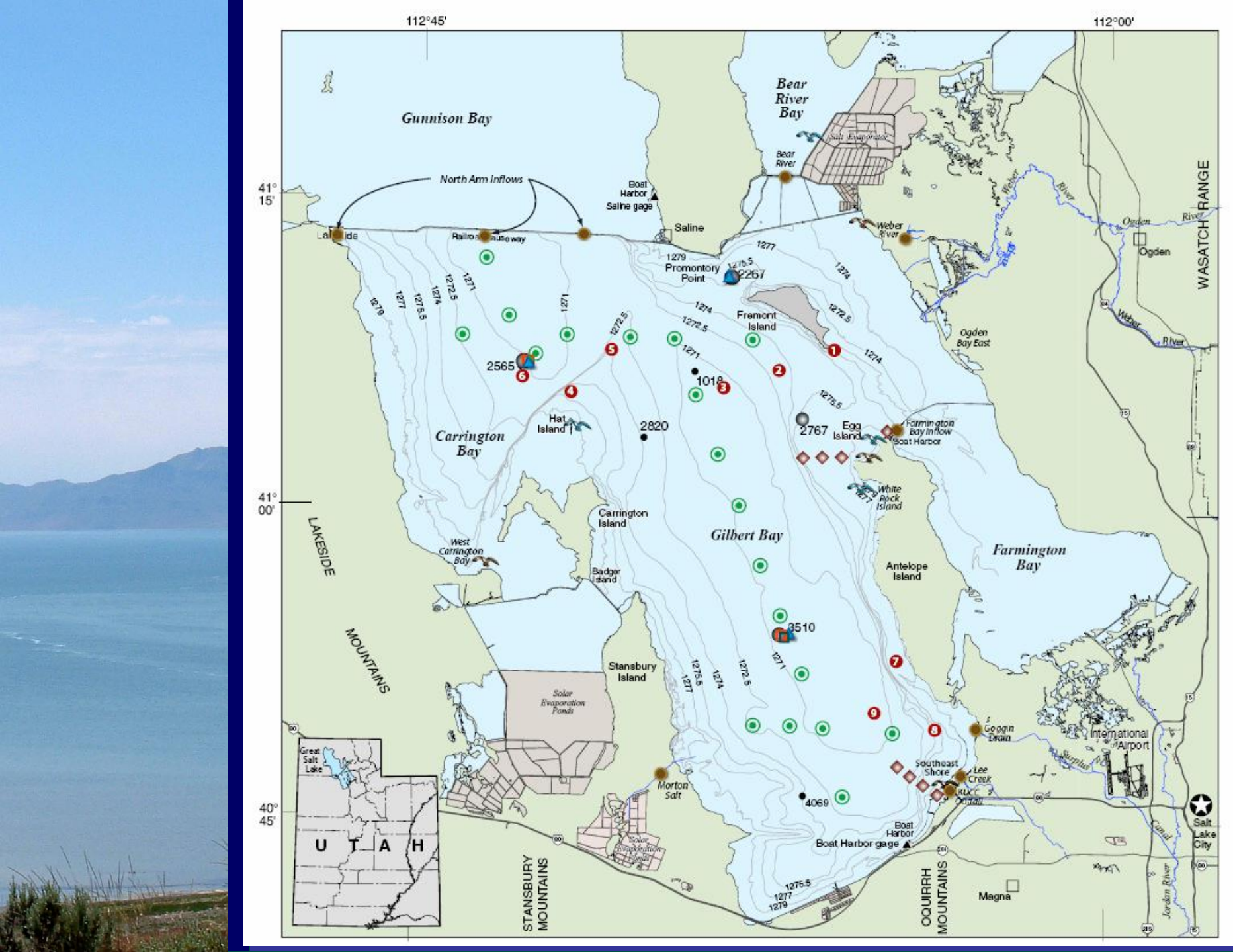
Questions?


112°45'
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Gunnison Bay
Bear River Bay
North Arm Inflows
Boat Harbor Saline gage
Saline
Bear River
Weber River
Ogden
WASATCH RANGE
Promontory Point
2267
Fremont Island
Ogden Bay East
2565
1018
Hat Island
2820
2767
Egg Island
Farmington Bay Inflow
Boat Harbor
White Rock Island
Carrington Bay
Carrington Island
Gilbert Bay
Farmington Bay
Antelope Island
West Carrington Bay
Badger Island
LAKESIDE MOUNTAINS
3510
Stansbury Island
Solar Evaporation Ponds
Goggin Drain
International Airport
Southeast Shore
Lee Creek
Morton Salt
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Boat Harbor gage
Salt Lake City
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STANSBURY MOUNTAINS
OQUIRRH MOUNTAINS
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